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JAN 24 2007

LOH SCHEPISI

P&T OFFICE ACKNOWLEDGEMENT

ATTORNEY Sheldon O. Heber		DATE 01/24/07
CASE NUMBER/ 21564YP	SERIAL NUMBER 10/577,893	
DATE FILED May 1, 2006		
APPLICANT Ludmerer, Steven W. et al.		
EXPRESS MAIL NO.		

The Patent & Trademark Office acknowledges, and has stamped hereon, the date of the receipt of the items checked below:

- ☒ AMENDMENT
- ☐ APPEAL AND FEE
- ☐ ASSIGNMENT
- ☐ BRIEF
- ☐ CERTIFICATE OF CORRECTION
- ☐ FINAL FEE
- ☐ LETTER
- ☐ REQUEST FOR F.F. LICENSE
- ☐ INFORMATION DISCLOSURE STATEMENT
- ☐ PTO 1449 & REFERENCES
- ☐ PETITION FOR EXTENSION OF TIME & FEE
- ☐ INVITATION TO CORRECT
- ☐ DEMAND-CHAPTER II & FEE SHEET
- ☒ Sequence Listing w/Disk
- ☒ Notice to Comply. . . Seq Discl.
- ☒ Raw Sequence Listing Error Report

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Ludmerer, Steven W. <i>et al.</i>	
Serial No.:	10/577,893	Case No.: 21564YP
Filed:	May 1, 2006	
For:	HCV REPLICONS CONTAINING NS5B FROM GENOTYPE 2B	

Art Unit:

Examiner:

Commission for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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AMENDMENT

Sir:

Responsive to the Notice to Comply mailed January 5, 2007, applicants request the present application be amended as follows:

Amendments to the Specification begin on page 2 of this paper.

Remarks/Arguments begin on page 3 of this paper.

37 C.F.R. 1.8 Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450, on the date appearing below.

MERCK & CO., INC.

By Sheidon O. Heber

Date January 24, 2007

Sheidon O. Heber

Amendments to the Specification:

Please amend the specification by entering the enclosed Sequence Listing.

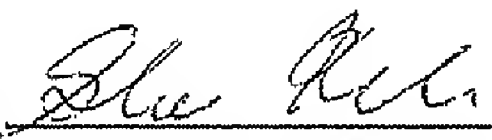
Remarks/Arguments

Enclosed with the present amendment is a copy of the Notice to Comply, the sequence listing printout accompanying the Notice to Comply, and an amended Sequence Listing provided in hard copy and computer readable form. The amendments to the Sequence Listing update the general information section and correct the description of features indicated in the Notice to Comply for SEQ ID NOs: 1, 24 and 27. The description for SEQ ID NO: 1 was amended to indicate Xaa in position 392, instead of position 376. The description for SEQ ID NO: 24 was amended to provide a correct spelling for "Artificial". The description for SEQ ID NO: 27 was amended to indicate "Artificial".

No new matter is introduced into the Sequence Listing. I hereby state that the contents of the paper and computer readable copies of the enclosed Sequence Listing are the same.

Please charge deposit account 13-2755 for fees due in connection with this amendment. If any time extensions are needed for the timely filing of the present amendment, applicants petition for such extensions and authorize the charging of deposit account 13-2755 for the appropriate fees.

Respectfully submitted,

By 
Sheldon O. Heber
Reg. No. 38,179
Attorney for Applicant(s)

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(732) 594-1958

SEQUENCE LISTING

<110> Ludmerer, Steven W.
 Graham, Donald J.
 LaFemina, Robert L.
 Flores, Osvaldo A.
 Pizzuti, Maura
 Traboni, Cinzia

<120> HCV REPLICONS CONTAINING NS5B FROM
 GENOTYPE 2B

<130> 21564YP

<140> 10/577,893

<141> 2006-05-01

<150> PCT/US2004/036575

<151> 2004-11-03

<150> 60/517,605

<151> 2003-11-05

<160> 28

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<210> 1

<211> 591

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<223> Xaa = threonine or serine

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<223> Xaa = asparagine or serine

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<223> Xaa = methionine or isoleucine

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<222> (392)...(392)

<223> Xaa = isoleucine or leucine

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144 2 & 7087

LOH 80424181

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Phe	Cys	Ile	Asp	Pro	Thr	Lys	Gly	Gly	Lys	Lys	Pro	Ala	Arg	Leu	Ile
Val	Tyr	Pro	Asp	Leu	Gly	Val	Arg	Val	Cys	Glu	Lys	Met	Ala	Leu	Tyr
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Phe	Gln	Tyr	Ser	Pro	Ala	Glu	Arg	Val	Asp	Phe	Leu	Leu	Lys	Ala	Trp
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Arg	His	Ser	Pro	Val	Asn	Ser	Trp	Leu	Gly	Asn	Ile	Ile	Gln	Tyr	Ala
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Tyr	His	Ser	Val	Ser	His	Ala	Arg	Pro	Arg	Leu	Leu	Leu	Leu	Cys	Leu
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<223> Xaa = asparagine or serine

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Ser 210	Gly	Lys	Ser	Thr	Lys	Val 215	Pro	Ala	Ala	Tyr	Ala 220	Ala	Gln	Gly	Tyr
Lys 225	Val	Leu	Val	Leu	Asn 230	Pro	Ser	Val	Ala	Ala	Thr 235	Leu	Gly	Phe	Gly 240
Ala	Tyr	Met	Ser 245	Lys	Ala	His	Gly	Ile	Asp 250	Pro	Asn	Ile	Arg	Thr 255	Gly
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			965					970						975	
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	995						1000					1005			
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Cys															

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DEBORAH D WILLIAMS

Telephone: (703) 308-9140 EXT 205

PART 1 - ATTORNEY/APPLICANT COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/577,893	PCT/US04/36575	21564Y

FORM PCT/DO/EO/922 (371 Formalities Notice)

STIC Biotechnology Systems Branch

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10/577,893
Source: TFWP
Date Processed by STIC: 05/11/2006

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Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail. Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom. Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

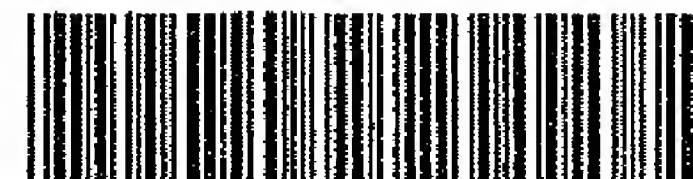
1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
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Revised 01/10/06

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MERCK & CO., INC.

By Shirley Aker Date 1-24-07



IFWP

RAW SEQUENCE LISTING

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:16

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 5 Istituto di Ricerche di Biologia Molecolare P. Angeletti S.p.A.
 7 <120> TITLE OF INVENTION: HCV REPLICONS CONTAINING NS5B FROM
 8 GENOTYPE 2B
 10 <130> FILE REFERENCE: 21564Y PCT
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/577,893
 C--> 12 <141> CURRENT FILING DATE: 2006-05-01
 12 <150> PRIOR APPLICATION NUMBER: 60/517,605
 13 <151> PRIOR FILING DATE: 2003-11-05
 15 <160> NUMBER OF SEQ ID NOS: 28
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 53 65 70 75 80
 54 Arg Leu Leu Thr Val Glu Glu Ala Cys Ala Leu Thr Pro Pro His Ser
 55 85 90 95
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Does Not Comply
 Corrected Diskette Needed
 (pg 1, 2, 6, 7)

RAW SEQUENCE LISTING

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:16

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

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106 Leu Arg Ala Trp Lys Ser Arg Ala Arg Ala Val Arg Ala Ser Leu Ile
107           500           505           510
108 Ala Gln Gly Ala Arg Ala Ala Ile Cys Gly Arg Tyr Leu Phe Asn Trp
109           515           520           525
110 Ala Val Lys Thr Lys Leu Lys Leu Thr Pro Leu Pro Glu Ala Ser Arg
111 530           535           540
112 Leu Asp Leu Ser Gly Trp Phe Thr Val Gly Ala Gly Gly Gly Asp Ile
113 545           550           555           560
114 Tyr His Ser Val Ser His Ala Arg Pro Arg Leu Leu Leu Cys Leu
115           565           570           575
116 Leu Leu Leu Ser Val Gly Val Gly Ile Phe Leu Leu Pro Asp Arg
117           580           585           590

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120 <210> SEQ ID NO: 2

121 <211> LENGTH: 1776

122 <212> TYPE: DNA

123 <213> ORGANISM: Artificial Sequence

125 <220> FEATURE:

126 <223> OTHER INFORMATION: modified NS5B

W--> 128 <221> NAME/KEY: variation

129 <222> LOCATION: (3)...(3)

130 <223> OTHER INFORMATION: n = A or T

W--> 132 <221> variation

133 <222> LOCATION: (9)...(9)

134 <223> OTHER INFORMATION: n = C or A

W--> 136 <221> variation

137 <222> LOCATION: (13)...(13)

138 <223> OTHER INFORMATION: n = A or T

W--> 140 <221> variation

141 <222> LOCATION: (15)...(15)

142 <223> OTHER INFORMATION: n = A or C

W--> 144 <221> variation

145 <222> LOCATION: (21)...(21)

146 <223> OTHER INFORMATION: n = A or G

W--> 148 <221> variation

149 <222> LOCATION: (24)...(24)

150 <223> OTHER INFORMATION: n = C or G

W--> 152 <221> variation

153 <222> LOCATION: (28)...(28)

154 <223> OTHER INFORMATION: n = T or C

W--> 156 <221> modified_base

157 <222> LOCATION: (30)...(30)

158 <223> OTHER INFORMATION: n = G or C

W--> 160 <221> variation

161 <222> LOCATION: (33)...(33)

162 <223> OTHER INFORMATION: n = C or A

W--> 164 <221> variation

165 <222> LOCATION: (71)...(71)

166 <223> OTHER INFORMATION: n = A or G

W--> 168 <221> variation

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

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169 <222> LOCATION: (83)...(83)
170 <223> OTHER INFORMATION: n = G or T
W--> 172 <221> variation
173 <222> LOCATION: (1174)...(1174)
174 <223> OTHER INFORMATION: n = A or C
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W--> 178 ttaccgatca nccctctgag taattcgctc atnccggtcc ataataaggt gtactccaca 120
179 acctcgagga gtgcctctct gagggcaaag aaggtgactt ttgacagggt gcagggtgctg 180
180 gacgcacact atgactcagt cttgcaggac gtttaagcggg ccgcctctaa ggttagtgcg 240
181 aggctcctca cggtagagga agcctgcgcg ctgaccccgcc cccactccgc caaatcgcca 300
182 tacggatttg gggcaaaaga ggtgcgcagc ttatctagga gggccgttaa ccacatccgg 360
183 tccgtgtggg aggacctct ggaagaccaa catacccca ttgacacaaac tatcatggct 420
184 aaaaatgagg tgttctgcat tgatccaact aaaggtggga aaaagccagc tcgcctcatc 480
185 gtataccccc accttgggggt caggggtgtgc gaaaagatgg ccctctatga catcgcaaaa 540
186 aagcttccca aagcgataat ggggccatcc tatgggttcc aatactctcc cgcagaacgg 600
187 gtcgatttcc tctcaaaagc ttgggggaagt aagaaggacc caatgggggt ctcgtatgac 660
188 acccgctgct ttgactcaac cgtcacggag agggacataa gaacagaaga atccatatat 720
189 caggcttggt ctctgcctca agaagccaga actgtcatac actcgtcac tgagagactt 780
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192 gcagcgtgta aggtgcagg gategtggac cctgttatgt tgggtgtgtg agacgacctg 960
193 gtcgatcatc cagagagcca aggtaacgag gaggacgagc gaaacctgag agctttcacg 1020
194 gaggctatga ccaggtattc cgcctctccc ggtgaccttc ccagaccgga atatgacttg 1080
195 gagcttataa catcctgctc ctcaaacgta tcggtagcgc tggactctcg gggtcgcccgc 1140
W--> 196 cggtaacttc taaccagaga ccctaccact ccantcacc gagctgcttg ggaaacagta 1200
197 agacactccc ctgtcaattc ttggctgggc aacatcatcc agtacgcccc cacaatctgg 1260
198 gtccggatgg tcataatgac tcacttcttc tccatactat tggcccagga cactctgaac 1320
199 caaaatctca attttgagat gtacggggca gtatactcgg tcaatccatt agacctaccg 1380
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201 gaactctcac ggggtgcagc aactctcaga aaacttggag cgcctccctc tagagcgtgg 1500
202 aagagtcggg cgcgtgccgt gagagcttca ctcatcgccc aaggagcgag ggcggccatt 1560
203 tgtggccgct acctcttcaa ctgggcgggtg aaaacaaagc tcaaactcac tccattgccc 1620
204 gaggcgagcc gcctggattt atccgggtgg ttaccgtgg gcgcggcgag gggcgacatt 1680
205 tatcacagcg tgcgcagtc ccgaccccgcc ctattactcc tttgcctact cctacttagc 1740
206 gtaggagtag gcattctttt actccccgat cgatga 1776
208 <210> SEQ ID NO: 3
209 <211> LENGTH: 1394
210 <212> TYPE: PRT
211 <213> ORGANISM: Artificial Sequence
213 <220> FEATURE:
214 <223> OTHER INFORMATION: modified NS3-5A
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217 <222> LOCATION: (1215)...(1215)
218 <223> OTHER INFORMATION: Xaa = asparagine or serine
W--> 220 <221> VARIANT
221 <222> LOCATION: (904)...(904)
222 <223> OTHER INFORMATION: Xaa = valine or alanine
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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

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225 Met Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly
226 1 5 10 15
227 Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly
228 20 25 30
229 Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys
230 35 40 45
231 Val Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Ser Lys Thr
232 50 55 60
233 Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp
234 65 70 75 80
235 Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Leu Thr
236 85 90 95
237 Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
238 100 105 110
239 Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
240 115 120 125
241 Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
242 130 135 140
243 Leu Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg Ala Ala Val Cys
244 145 150 155 160
245 Thr Arg Gly Val Ala Lys Ala Val Asp Phe Val Pro Val Glu Ser Met
246 165 170 175
247 Glu Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro
248 180 185 190
249 Ala Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly
250 195 200 205
251 Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr
252 210 215 220
253 Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly
254 225 230 235 240
255 Ala Tyr Met Ser Lys Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly
256 245 250 255
257 Val Arg Thr Ile Thr Thr Gly Ala Pro Val Thr Tyr Ser Thr Tyr Gly
258 260 265 270
259 Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile
260 275 280 285
261 Ile Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile
262 290 295 300
263 Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val
264 305 310 315 320
265 Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn
266 325 330 335
267 Ile Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly
268 340 345 350
269 Lys Ala Ile Pro Ile Glu Ala Ile Arg Gly Gly Arg His Leu Ile Phe
270 355 360 365
271 Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Gly
272 370 375 380
273 Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val

```

10/597,893

6

<210> 24

<211> 19

<212> DNA

<213> Artificial Sequence

<400> 24

gtctaccgtg agcgaggaa

→ If <213> Responses are
Artificial or Unknown.
Pls Explain the Source
of genetic Material.
See Item 11 on Error
Summary Sheet.

10/577,893

7

<210> 27

<211> 783

<212> DNA

<213> modified NS4B

<400> 27

→ 22137 Responses can only
be Artificial, Unknown
or Genus Species. See
Item 10 on Error Summary
Sheet.

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006
TIME: 11:07:17

Input Set : A:\21564Y SEQ 05 01 06.TXT
Output Set: N:\CRF4\05112006\J577893.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 5,24,31,392
Seq#:2; N Pos. 3,9,13,15,21,24,28,30,33,71,93,1174
Seq#:3; Xaa Pos. 904,1215
Seq#:4; N Pos. 3644

Use of <220> Feature(NEW RULES):

Sequence(s) are missing the <220> Feature and associated headings.
Use of <220> to <223> is MANDATORY if <213> ORGANISM is "Artificial Sequence" or "Unknown". Please explain source of genetic material in <220> to <223> section (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp.29631-32) (Sec.1.823 of new Rules)

Seq#:1,2,3,4,24

VERIFICATION SUMMARY

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:17

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:27 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:31 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:35 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:39 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:43 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:44 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:16
L:92 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:384
L:128 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:132 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:136 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:140 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:144 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:148 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:152 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:156 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:160 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:164 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:168 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:172 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:176 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:177 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:178 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:60
L:196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:1140
L:216 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:220 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3
L:224 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3
L:337 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:896
L:375 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:1200
L:411 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:415 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:419 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:480 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:3600
L:703 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:24
L:705 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ#:24, <213>
ORGANISM:Artificial Sequence
L:705 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ#:24, <213>
ORGANISM:Artificial Sequence
L:705 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:24, Line#:705

STIC Biotechnology Systems Branch

RAW SEQUENCE LISTING **ERROR REPORT**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10/577,893
Source: TFWP
Date Processed by STIC: 05/11/2006

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE **CHECKER VERSION 4.4.0 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker/chkrnote.htm>

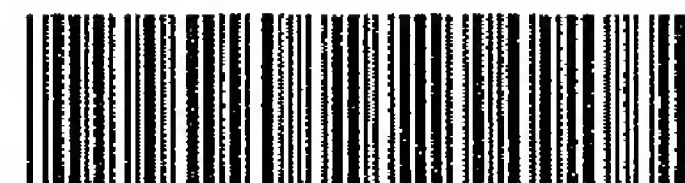
Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
3. Hand Carry, Federal Express, United Parcel Service, or other delivery service (EFFECTIVE 01/14/05):
U.S. Patent and Trademark Office, Mail Stop Sequence, Customer Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

Revised 01/10/06



IFWP

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

4 <110> APPLICANT: Merck & Co., Inc.
 5 Istituto di Ricerche di Biologia Molecolare P. Angeletti S.p.A.
 7 <120> TITLE OF INVENTION: HCV REPLICONS CONTAINING NS5B FROM
 8 GENOTYPE 2B
 10 <130> FILE REFERENCE: 21564Y PCT
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/577,893
 C--> 12 <141> CURRENT FILING DATE: 2006-05-01
 12 <150> PRIOR APPLICATION NUMBER: 60/517,605
 13 <151> PRIOR FILING DATE: 2003-11-05
 15 <160> NUMBER OF SEQ ID NOS: 28
 17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 591
 21 <212> TYPE: PRT
 22 <213> ORGANISM: Artificial Sequence
 24 <220> FEATURE:
 25 <223> OTHER INFORMATION: modified NS5B
 W--> 27 <221> NAME/KEY: VARIANT
 28 <222> LOCATION: (5)...(5)
 29 <223> OTHER INFORMATION: Xaa = threonine or serine
 W--> 31 <221> VARIANT
 32 <222> LOCATION: (24)...(24)
 33 <223> OTHER INFORMATION: Xaa = asparagine or serine
 W--> 35 <221> VARIANT
 36 <222> LOCATION: (31)...(31)
 37 <223> OTHER INFORMATION: Xaa = methionine or isoleucine
 W--> 39 <221> VARIANT
 40 <222> LOCATION: (376)...(376) → at this location 'Ser'
 41 <223> OTHER INFORMATION: Xaa = isoleucine or leucine → at this location
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 W--> 44 Ser Met Ser Tyr Xaa Trp Thr Gly Ala Leu Ile Thr Pro Cys Gly Pro
 45 1 5 10 15
 W--> 46 Glu Glu Glu Lys Leu Pro Ile Xaa Pro Leu Ser Asn Ser Leu Xaa Arg
 47 20 25 30
 48 Phe His Asn Lys Val Tyr Ser Thr Thr Ser Arg Ser Ala Ser Leu Arg
 49 35 40 45
 50 Ala Lys Lys Val Thr Phe Asp Arg Val Gln Val Leu Asp Ala His Tyr
 51 50 55 60
 52 Asp Ser Val Leu Gln Asp Val Lys Arg Ala Ala Ser Lys Val Ser Ala
 53 65 70 75 80
 54 Arg Leu Leu Thr Val Glu Glu Ala Cys Ala Leu Thr Pro Pro His Ser
 55 85 90 95
 56 Ala Lys Ser Arg Tyr Gly Phe Gly Ala Lys Glu Val Arg Ser Leu Ser

Does Not Comply
 Corrected Diskette Needed
 (pg 1, 2, 6, 7)

RAW SEQUENCE LISTING

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

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58 Arg Arg Ala Val Asn His Ile Arg Ser Val Trp Glu Asp Leu Leu Glu
59      115      120      125
60 Asp Gln His Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val
61      130      135      140
62 Phe Cys Ile Asp Pro Thr Lys Gly Gly Lys Lys Pro Ala Arg Leu Ile
63 145      150      155      160
64 Val Tyr Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr
65      165      170      175
66 Asp Ile Ala Gln Lys Leu Pro Lys Ala Ile Met Gly Pro Ser Tyr Gly
67      180      185      190
68 Phe Gln Tyr Ser Pro Ala Glu Arg Val Asp Phe Leu Leu Lys Ala Trp
69      195      200      205
70 Gly Ser Lys Lys Asp Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe
71      210      215      220
72 Asp Ser Thr Val Thr Glu Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr
73 225      230      235      240
74 Gln Ala Cys Ser Leu Pro Gln Glu Ala Arg Thr Val Ile His Ser Leu
75      245      250      255
76 Thr Glu Arg Leu Tyr Val Gly Gly Pro Met Thr Asn Ser Lys Gly Gln
77      260      265      270
78 Ser Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser
79      275      280      285
80 Met Gly Asn Thr Met Thr Cys Tyr Ile Lys Ala Leu Ala Ala Cys Lys
81      290      295      300
82 Ala Ala Gly Ile Val Asp Pro Val Met Leu Val Cys Gly Asp Asp Leu
83 305      310      315      320
84 Val Val Ile Ser Glu Ser Gln Gly Asn Glu Glu Asp Glu Arg Asn Leu
85      325      330      335
86 Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp
87      340      345      350
88 Leu Pro Arg Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser
89      355      360      365
90 Asn Val Ser Val Ala Leu Asp Ser Arg Gly Arg Arg Arg Tyr Phe Leu
91      370      375      380
W--> 92 Thr Arg Asp Pro Thr Thr Pro Xaa Thr Arg Ala Ala Trp Glu Thr Val
93 385      390      395      400
94 Arg His Ser Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Gln Tyr Ala
95      405      410      415
96 Pro Thr Ile Trp Val Arg Met Val Ile Met Thr His Phe Phe Ser Ile
97      420      425      430
98 Leu Leu Ala Gln Asp Thr Leu Asn Gln Asn Leu Asn Phe Glu Met Tyr
99      435      440      445
100 Gly Ala Val Tyr Ser Val Asn Pro Leu Asp Leu Pro Ala Ile Ile Glu
101      450      455      460
102 Arg Leu His Gly Leu Glu Ala Phe Ser Leu His Thr Tyr Ser Pro His
103 465      470      475      480
104 Glu Leu Ser Arg Val Ala Ala Thr Leu Arg Lys Leu Gly Ala Pro Pro
105      485      490      495

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

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106 Leu Arg Ala Trp Lys Ser Arg Ala Arg Ala Val Arg Ala Ser Leu Ile
107           500           505           510
108 Ala Gln Gly Ala Arg Ala Ala Ile Cys Gly Arg Tyr Leu Phe Asn Trp
109           515           520           525
110 Ala Val Lys Thr Lys Leu Lys Leu Thr Pro Leu Pro Glu Ala Ser Arg
111           530           535           540
112 Leu Asp Leu Ser Gly Trp Phe Thr Val Gly Ala Gly Gly Gly Asp Ile
113 545           550           555           560
114 Tyr His Ser Val Ser His Ala Arg Pro Arg Leu Leu Leu Leu Cys Leu
115           565           570           575
116 Leu Leu Leu Ser Val Gly Val Gly Ile Phe Leu Leu Pro Asp Arg
117           580           585           590

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120 <210> SEQ ID NO: 2

121 <211> LENGTH: 1776

122 <212> TYPE: DNA

123 <213> ORGANISM: Artificial Sequence

125 <220> FEATURE:

126 <223> OTHER INFORMATION: modified NS5B

W--> 128 <221> NAME/KEY: variation

129 <222> LOCATION: (3)...(3)

130 <223> OTHER INFORMATION: n = A or T

W--> 132 <221> variation

133 <222> LOCATION: (9)...(9)

134 <223> OTHER INFORMATION: n = C or A

W--> 136 <221> variation

137 <222> LOCATION: (13)...(13)

138 <223> OTHER INFORMATION: n = A or T

W--> 140 <221> variation

141 <222> LOCATION: (15)...(15)

142 <223> OTHER INFORMATION: n = A or C

W--> 144 <221> variation

145 <222> LOCATION: (21)...(21)

146 <223> OTHER INFORMATION: n = A or G

W--> 148 <221> variation

149 <222> LOCATION: (24)...(24)

150 <223> OTHER INFORMATION: n = C or G

W--> 152 <221> variation

153 <222> LOCATION: (28)...(28)

154 <223> OTHER INFORMATION: n = T or C

W--> 156 <221> modified_base

157 <222> LOCATION: (30)...(30)

158 <223> OTHER INFORMATION: n = G or C

W--> 160 <221> variation

161 <222> LOCATION: (33)...(33)

162 <223> OTHER INFORMATION: n = C or A

W--> 164 <221> variation

165 <222> LOCATION: (71)...(71)

166 <223> OTHER INFORMATION: n = A or G

W--> 168 <221> variation

RAW SEQUENCE LISTING

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

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169 <222> LOCATION: (83)...(83)
170 <223> OTHER INFORMATION: n = G or T
W--> 172 <221> variation
173 <222> LOCATION: (1174)...(1174)
174 <223> OTHER INFORMATION: n = A or C
W--> 176 <400> 2
W--> 177 tcnatgtcnt acncttgagc nggngccntn atnacaccat gtgggcccga agaggagaag 60
W--> 178 ttaccgatca nccctctgag taattegctc atncgggtcc ataataaggt gtactccaca 120
179 acctcgagga gtgcctctct gagggcaaag aaggtgactt ttgacagggt gcaggtgctg 180
180 gacgcacact atgactcagt cttgcaggac gttaagcggg ccgcctctaa ggtagtgctg 240
181 aggtctctca cggtagagga agcctgcgcg ctgaccccgcc cccactccgc caaatcgcg 300
182 tacggatttg gggcaaaaaga ggtgcgcgac ttatctagga gggccgttaa ccacatccgg 360
183 tccgtgtggg aggacctcct ggaagaccaa catacccaa ttgacacaac tatcatggct 420
184 aaaaatgagg tgttctgcat tgatccaact aaaggtggga aaaagccagc tcgcctcacc 480
185 gtataccccg accttggggg cagggtgtgc gaaaagatgg ccctctatga catcgcaaa 540
186 aagcttccca aagcgataat ggggccatcc tatgggttcc aatactctcc cgcagaacgg 600
187 gtcgatttcc tctcaaaagc ttgggggaagt aagaaggacc caatgggggt ctcgtatgac 660
188 acccgctgct ttgactcaac cgtcacggag agggacataa gaacagaaga atccatatat 720
189 caggcttggt ctctgcctca agaagccaga actgtcatac actcgtcac tgagagactt 780
190 tacgtaggag ggcccatgac aaacagcaaa gggcaatcct gcggctacag gcgttgccgc 840
191 gcaagcggtg ttttcaccac cagcatgggg aataccatga catgttacat caaagccctt 900
192 gcagcgtgta aggtgcagg gatcgtggac cctgttatgt tgggtgtgtg agaagacctg 960
193 gtcgtcatct cagagagcca aggtaacgag gaggacgagc gaaacctgag agctttcacg 1020
194 gaggtatga ccaggatctc cgcacctccc ggtgaccttc ccagaccgga atatgacttg 1080
195 gagcttataa catcctgctc ctcaaacgta tcggtagcgc tggactctcg gggtcgccgc 1140
W--> 196 cgggtacttcc taaccagaga ccctaccact ccantcacc gagctgcttg ggaaacagta 1200
197 agacactccc ctgtcaattc ttggctgggc aacatcatcc agtacgcccc cacaatctgg 1260
198 gtcggatgg tcataatgac tcaattcttc tcatactat tggcccagga cactctgaac 1320
199 caaatctca attttgagat gtacggggca gtatactcg tcaatccatt agacctaccg 1380
200 gccataattg aaaggctaca tgggcttgaa gccttttcac tgcacacata ctctccccac 1440
201 gaactctcac ggggtgcagc aactctcaga aaacttggag cgcctccct tagagcgtgg 1500
202 aagagtcggg cgcgtgccgt gagagcttca ctcatcgccc aaggagcgag ggcggccatt 1560
203 tgtggccgct acctcttcaa ctggggcggg aaaacaaagc tcaaactcac tccattgccc 1620
204 gaggcgagcc gcctggattt atccgggtgg ttcacgctgg gcgcggcg gggcgacatt 1680
205 tatcacagcg tgcgcagtc ccgaccccgcc ctattactcc tttgctact cctacttagc 1740
206 gtaggagtag gcattctttt actccccgat cgatga 1776
208 <210> SEQ ID NO: 3
209 <211> LENGTH: 1394
210 <212> TYPE: PRT
211 <213> ORGANISM: Artificial Sequence
213 <220> FEATURE:
214 <223> OTHER INFORMATION: modified NS3-5A
W--> 216 <221> NAME/KEY: VARIANT
217 <222> LOCATION: (1215)...(1215)
218 <223> OTHER INFORMATION: Xaa = asparagine or serine
W--> 220 <221> VARIANT
221 <222> LOCATION: (904)...(904)
222 <223> OTHER INFORMATION: Xaa = valine or alanine
W--> 224 <400> 3

```

RAW SEQUENCE LISTING

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:16

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

```

225 Met Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly
226 1 5 10 15
227 Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly
228 20 25 30
229 Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys
230 35 40 45
231 Val Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Ser Lys Thr
232 50 55 60
233 Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp
234 65 70 75 80
235 Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Leu Thr
236 85 90 95
237 Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
238 100 105 110
239 Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
240 115 120 125
241 Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
242 130 135 140
243 Leu Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg Ala Ala Val Cys
244 145 150 155 160
245 Thr Arg Gly Val Ala Lys Ala Val Asp Phe Val Pro Val Glu Ser Met
246 165 170 175
247 Glu Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro
248 180 185 190
249 Ala Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly
250 195 200 205
251 Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr
252 210 215 220
253 Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly
254 225 230 235 240
255 Ala Tyr Met Ser Lys Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly
256 245 250 255
257 Val Arg Thr Ile Thr Thr Gly Ala Pro Val Thr Tyr Ser Thr Tyr Gly
258 260 265 270
259 Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile
260 275 280 285
261 Ile Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile
262 290 295 300
263 Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val
264 305 310 315 320
265 Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn
266 325 330 335
267 Ile Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly
268 340 345 350
269 Lys Ala Ile Pro Ile Glu Ala Ile Arg Gly Gly Arg His Leu Ile Phe
270 355 360 365
271 Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Gly
272 370 375 380
273 Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val

```

0/577,893

6

<210> 24

<211> 19

<212> DNA

<213> Artificial Sequence

<400> 24

gtctaccgtg agcgaggaa

If 2137 Responses are
Artificial or Unknown.
Pls Explain the Source
of genetic Material.
See Item 11 on Error
Summary Sheet.

0/577,893

7

<210> 27

<211> 783

<212> DNA

<213> modified NS4B

<400> 27

22137 Responses can only
be Artificial, Unknown
or Genus Species. See
Item 10 on Error Summary
Sheet.

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/577,893

DATE: 05/11/2006
TIME: 11:07:17

Input Set : A:\21564Y SEQ 05 01 06.TXT
Output Set: N:\CRF4\05112006\J577893.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 5, 24, 31, 392
Seq#:2; N Pos. 3, 9, 13, 15, 21, 24, 28, 30, 33, 71, 93, 1174
Seq#:3; Xaa Pos. 904, 1215
Seq#:4; N Pos. 3644

Use of <220> Feature (NEW RULES):

Sequence(s) are missing the <220> Feature and associated headings.
Use of <220> to <223> is MANDATORY if <213> ORGANISM is "Artificial Sequence" or "Unknown". Please explain source of genetic material in <220> to <223> section (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp.29631-32) (Sec.1.823 of new Rules)

Seq#:1, 2, 3, 4, 24

VERIFICATION SUMMARY

DATE: 05/11/2006

PATENT APPLICATION: US/10/577,893

TIME: 11:07:17

Input Set : A:\21564Y SEQ 05 01 06.TXT

Output Set: N:\CRF4\05112006\J577893.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:27 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:31 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:35 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:39 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:43 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:44 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:16
L:92 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:384
L:128 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:132 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:136 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:140 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:144 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:148 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:152 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:156 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:160 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:164 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:168 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:172 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:176 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:177 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:178 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:60
L:196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:1140
L:216 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:220 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3
L:224 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3
L:337 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:896
L:375 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:1200
L:411 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:415 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:419 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:480 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:3600
L:703 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:24
L:705 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ#:24, <213>
ORGANISM:Artificial Sequence
L:705 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ#:24, <213>
ORGANISM:Artificial Sequence
L:705 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:24, Line#:705